

WHAT IS CLAIMED IS:

1 1. A medical method for detecting and treating inadequate tissue
2 perfusion of a patient, comprising:
3 providing a sensor for measuring an intravascular blood parameter;
4 positioning the sensor on a portion of the patient's vasculature;
5 measuring the intravascular parameter using the sensor;
6 detecting inadequate tissue perfusion based on the intravascular parameter
7 measured by the sensor;
8 delivering a stimulus to increase tissue perfusion as a function of the measured
9 intravascular parameter.

1 2. A medical method as in claim 1, wherein the sensor measures blood
2 pressure, and wherein the sensor is positioned on a blood vessel.

1 3. A medical method as in claim 2, wherein the sensor includes a
2 transducer and a catheter, wherein the catheter extends through a wall and inside a lumen of
3 the blood vessel and the transducer resides outside the blood vessel.

1 4. A medical method as in claim 1, wherein the sensor measures blood
2 flow rate, and wherein the sensor is positioned on a blood vessel.

1 5. A medical method as in claim 1, wherein the sensor is positioned on an
2 artery.

1 6. A medical method as in claim 1, wherein the sensor is positioned on an
2 vein.

1 7. A medical method for detecting and treating inadequate tissue
2 perfusion of a patient, comprising:
3 providing a sensor for measuring intracardiac pressure;
4 positioning the sensor in or on the patient's heart;
5 measuring intracardiac pressure of the left side of the patient's heart using the
6 sensor;
7 detecting inadequate tissue perfusion based on the intracardiac pressure
8 measurement;

9 delivering a stimulus to increase tissue perfusion as a function of the
10 intracardiac pressure measurement.

1 8. A medical method as in claim 7, wherein the measured intracardiac
2 pressure comprises left atrial pressure.

1 9. A medical method as in claim 7, wherein the measured intracardiac
2 pressure comprises left ventricular pressure.

1 10. A medical method as in claim 7, wherein the sensor is positioned on a
2 chamber wall.

1 11. A medical method as in claim 10, wherein the chamber wall comprises
2 a septal wall.

1 12. A medical method as in claim 10, wherein the chamber wall comprises
2 a free wall.

1 13. A medical method as in claim 10, wherein the sensor includes a
2 transducer and a catheter, wherein the catheter extends through the chamber wall into a
3 cardiac chamber and the transducer resides outside the chamber.

1 14. A medical method as in claim 13, wherein the sensor is connected to a
2 pacing electrode and the pacing electrode contacts the chamber wall.

1 15. A medical method for detecting and treating inadequate tissue
2 perfusion of a patient, comprising:
3 providing a sensor for measuring tissue perfusion;
4 providing a therapeutic device for delivering a stimulus to increase tissue
5 perfusion;
6 positioning the sensor in the patient remote from the therapeutic device;
7 measuring tissue perfusion using the sensor;
8 detecting inadequate tissue perfusion based on the tissue perfusion
9 measurement; and
10 delivering a stimulus to increase tissue perfusion as a function of the tissue
11 perfusion measurement.

1 16. A medical method as in claim 15, wherein the sensor is positioned
2 adjacent vascularized tissue and measures blood flow in the vascularized tissue.

1 17. A medical method as in claim 16, wherein the sensor measures blood
2 flow in capillaries in the vascularized tissue.

1 18. A medical method for treating a patient, comprising:
2 detecting heart rate as an indicator of inadequate tissue perfusion;
3 detecting at least one other indicia of inadequate tissue perfusion;
4 delivering a stimulus to increase tissue perfusion as a function of both heart
5 rate and the at least one other indicia.

1 19. A medical method as in claim 18, further comprising providing a
2 therapeutic device for delivering the stimulus to increase tissue perfusion.

1 20. A medical method as in claim 19, wherein the step of delivering the
2 stimulus comprises delivering a stimulus to increase heart rate.

1 21. A medical method as in claim 20, wherein the step of providing a
2 therapeutic device comprises providing a pacemaker, and wherein the step of delivering the
3 stimulus to increase heart rate comprises delivering electrical impulses to the patient's heart.

1 22. A medical method as in claim 20, wherein the step of providing a
2 therapeutic device comprises providing an infusion pump, and wherein the step of delivering
3 the stimulus to increase heart rate comprises delivering a bolus of a drug.

1 23. A medical method as in claim 20, wherein the step of detecting at least
2 one other indicia of inadequate tissue perfusion comprises detecting blood pressure.

1 24. A medical method as in claim 23, wherein the step of detecting blood
2 pressure comprises detecting vascular blood pressure.

1 25. A medical method as in claim 23, wherein the step of detecting blood
2 pressure comprises detecting intracardiac blood pressure.

1 26. A medical method as in claim 20, wherein the step of detecting at least
2 one other indicia of inadequate tissue perfusion comprises detecting blood flow.

1 27. A medical method as in claim 26, wherein the step of detecting blood
2 flow comprises detecting vascular blood flow.

1 28. A medical method as in claim 20, wherein the step of detecting at least
2 one other indicia of inadequate tissue perfusion comprises detecting blood perfusion in tissue.

1 29. A medical method as in claim 28, wherein the step of detecting blood
2 perfusion in tissue comprises detecting blood perfusion in tissue in the patient's upper body.

1 30. A medical method as in claim 28, wherein the step of detecting blood
2 perfusion in tissue comprises detecting blood perfusion in tissue in the patient's chest.

1 31. A medical method as in claim 28, wherein the step of detecting blood
2 perfusion in tissue comprises detecting blood perfusion in tissue in the patient's head or neck.

1 32. A medical method, comprising:
2 providing an implantable therapeutic device (ITD) configured to deliver a
3 stimulus to increase heart rate;
4 providing an implantable pressure sensing device (PSD) including a
5 hermetically sealed housing, a pressure transducer disposed in the housing, a pressure
6 transmission catheter (PTC) having a proximal end, a distal end, and a lumen extending
7 therethrough, with the proximal end of the PTC connected to the housing and the lumen of
8 the PTC in fluid communication with the pressure transducer;
9 implanting the ITD in a patient;
10 implanting the PSD in the patient such that the distal end of the PTC resides in
11 a vascular lumen and the housing remains outside the vascular lumen;
12 connecting the PSD to the ITD via an electrical lead; and
13 operating the ITD to deliver the stimulus to increase heart rate in response to a
14 drop in blood pressure as measured by the PSD.

1 33. A method as in claim 32, wherein the pressure transducer of the PSD
2 converts a pressure signal to an electrical signal, and wherein the ITD includes a signal
3 processor which evaluates the electrical signal for hypotension.

1 34. A method as in claim 33, wherein the lumen of the PTC is filled with a
2 fluid and a barrier is disposed in a distal end of the PTC lumen to contain the fluid while
3 permitting pressure to be transferred therethrough.

1 35. A method as in claim 32, wherein the ITD delivers an electrical
2 stimulus.

1 36. A method as in claim 32, wherein the ITD delivers a pharmacological
2 stimulus.